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EPA

Getting Ready Scoping The RI/FS

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This fact sheet is a synopsis of Chapter Two of the *Interim Final Guidance for Conducting Remedial Investigations and Feasibility Studies Under CERCLA* (October 1988, OSWER Directive No. 9355.3-01). In addition to summarizing Chapter Two of the guidance, this fact sheet provides information on how to manage the scoping phase of the remedial investigation/feasibility study (RI/FS) process.

The RI/FS is a flexible process that should be tailored to the specific circumstances of individual sites. The Remedial Project Manager's (RPM) central responsibility is to determine how best to use this flexibility to conduct an efficient and effective RI/FS that achieves high-quality results in a timely and cost-effective manner. Scoping is the initial planning phase of the RI/FS and is continued and refined as new information about the site becomes available.

During scoping, the lead and support agencies should first identify the type and optimal sequence of site activities, including whether the site may best be remedied as separate operable units. Operable units are discrete actions that comprise incremental steps toward the final remedy, and may be actions that completely address a geographic portion of a site or a specific site problem. Operable units may also be interim or early actions; however, they must be followed by subsequent actions to definitively address the scope of the problem. Early actions must mitigate potential threats, prevent further environmental degradation, or rapidly and significantly reduce risks. Consistant with the general site management strategy, the specific project scope is then planned and documented in project plans. A schematic of the scoping process is presented in Figure 1.

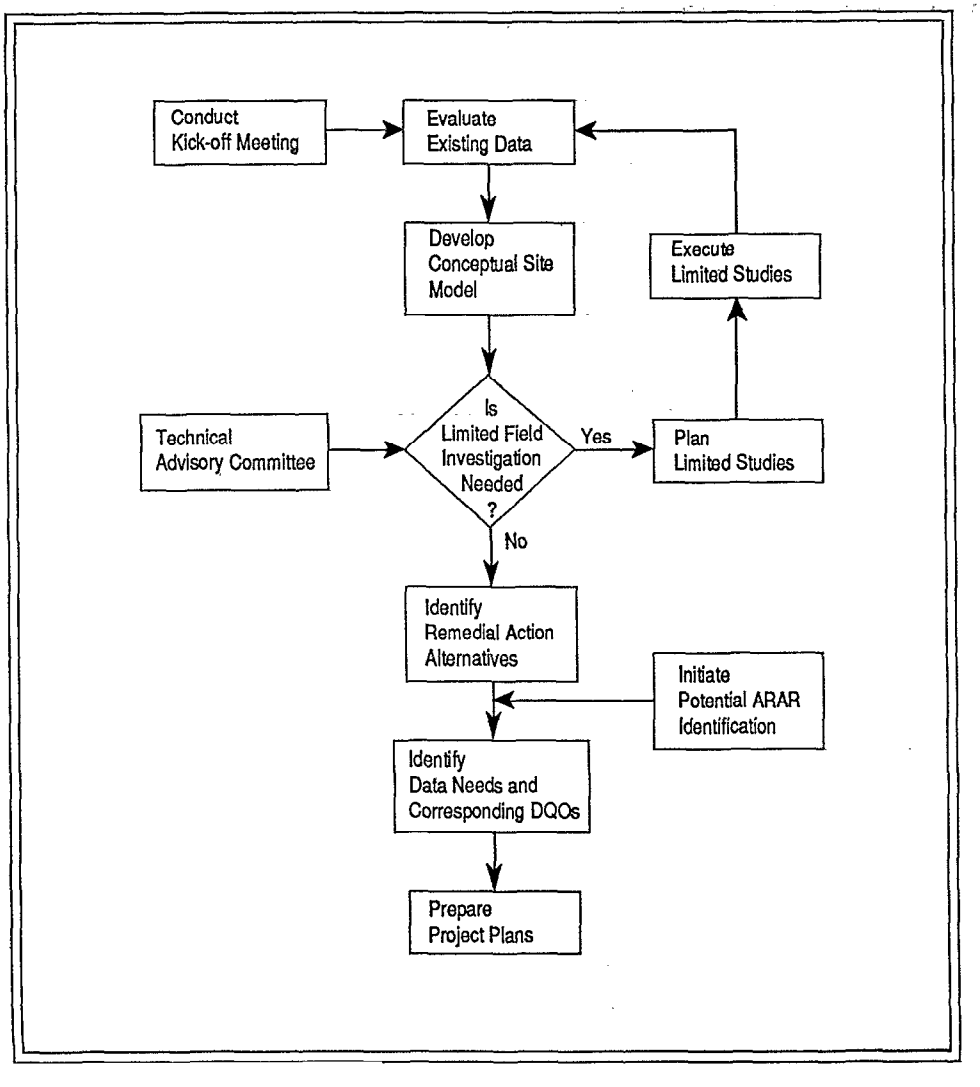

Figure 1. The Scoping Process

In the development of the specific project scope, the objectives of the RI/FS must be balanced with time and resource constraints. As an example, to focus efforts and to save time and expense, a site's sampling program, developed during scoping, should focus only on collecting data required to characterize the risks posed by a site and evaluate those remedial actions most likely to be appropriate for a site.

Additionally, to better focus efforts, program expectations concerning appropriate site remedies are to be considered and utilized during project scoping. These expectations will influence many of the activities described throughout this fact sheet. In particular, program expectations will influence the establishment of remedial action objectives and the corresponding identification of potential remedial alternatives. Program expectations focus on the protection of human health and the environment through a variety of methods, including treatment, engineering controls, and/or institutional controls. EPA has established the following goal and expectations to assist in the identification of those remedial actions that have a significant potential for being implemented.

Program Goal

The goal of the remedy selection process is to select remedial actions that are protective of human health and the environment, that maintain protection over time, and that minimize untreated waste.

Program Expectations

- Treatment of principal threats will be used, wherever practicable; principal threats may include liquids and highly mobile or highly toxic materials.
- Engineering controls may be used for waste that poses a low long-term threat or where treatment is impracticable.
- Institutional controls will be used to mitigate short-term impacts or to supplement engineering controls; they will not serve as a sole remedy unless active response measures are impracticable.
- Remedies will often combine treatment of principal threats with engineering and institutional controls for treatment residuals and untreated waste.
- Innovative technologies should be considered if they offer the potential for comparable or superior treatment performance, fewer/lesser adverse impacts, or lower costs for a similar level of performance than demonstrated technologies.
- Ground water will be returned to its beneficial uses within a timeframe that is reasonable, where practicable.

Scoping Activities

Conduct Site Kickoff Meetings

To initiate the scoping process and to begin site management planning, a kick-off meeting (or series of meetings) is organized by the RPM. Personnel attending these meetings should include: representatives from lead and support agencies including other program staff (as needed), contractor personnel who will be performing each portion of the RI/FS or the oversight, technical experts (see Technical Support section), Environmental Services Division representatives, Natural Resource Trustee representatives (when applicable), enforcement staff, and individuals with prior experience at the site or at similar sites. During these meetings, the responsibilities for RI/FS activities will be reviewed and/or assigned. In addition, lines of communication should be established among key personnel.

Note: Two or more scoping meetings may be warranted to reduce project start-up time and cost. The first meeting(s) may include Federal and State technical personnel to identify the type and optimal sequence of site activities and to better focus the contractor's scope of work. Subsequent meetings may be held after the work assignment has been issued and the contractor has had time to review available site background data.

Evaluate Existing Data

As a first step to scoping, existing data will be compiled and evaluated. A key step in the evaluation of existing data is the determination of its quality and usability. Existing data does not have to be of sufficient quality to make final decisions but may be helpful in developing a conceptual understanding of site dynamics. Evaluating existing data is necessary to focus RI/FS efforts and to avoid duplication of previous activities. In addition, this activity helps to determine additional data needs. Data are needed to:

- Characterize the site to the extent necessary to support subsequent decisions
- Define the risk posed by the site
- Identify viable remedial action alternatives
- Identify applicable or relevant and appropriate requirements (ARARs)
- Evaluate the need for treatability studies
- Support enforcement activities

The types of existing data that should be compiled and evaluated include:

- Site data gathered during the National Priorities List (NPL) listing process and the potentially responsible party (PRP) search
- Historical and aerial photographs
- Records of disposal practices and operating procedures
- Generator manufacturing process information
- Regional geology, hydrology, meteorology, and ecology
- Demographic and land use information
- Location of sensitive environmental areas, supply wells, and surface water use on or near the site

Note: Information sources near the site will provide valuable site data and should not be overlooked. Such sources include local land records and deed books; representatives from the Soil Conservation Service, the Agricultural Extension Service, well drilling companies, and the Sheriff's office; and meterological monitoring stations for local airports or towns. In addition, interviews with present/past site owners and employees will often provide necessary site information.

Conduct Site Visit

The information obtained from conducting a site visit will ease the scoping task, save time, and help to avoid mistakes and oversights. After gaining access to the site, the RPM should walk the site taking field notes and photographs. Specifically, a site visit should be conducted to: (1) identify the site's physical characteristics, noting changes from the historical data base which may necessitate an early action, and (2) assist in developing an understanding of waste sources, areas of contamination, potential exposure pathways, and potential receptors at or near the site.

Develop Conceptual Site Model

The conceptual site model is used to: (1) develop a general understanding of the site to evaluate potential risks to human health and the environment and (2) assist in identifying and setting priorities for the activities to be conducted at the site. The conceptual site model may be either a pictorial or graphic representation of site dynamics as illustrated in Figure 2 of this fact sheet or Figure 2-2 of the *RI/FS Guidance*, respectively. The conceptual site model identifies:

- Potential sources of contamination
- Types of contaminants and affected media

- Release mechanisms and potential contaminant pathways
- Actual and potential human and environmental receptors

Note: A limited field investigation may be undertaken if insufficient information exists to develop the conceptual model. Normally, a limited investigation focuses on easily obtainable data where results can be received in a short time. Examples may include activities such as geophysical surveys, well water level measurements, or sampling and analysis of existing wells.

Identify Remedial Action Objectives and Potential Remedial Alternatives

Once a conceptual understanding of the site is obtained, potential remedial action objectives should be identified for each media to be addressed. These objectives consist of medium or operable-unit specific goals for protecting human health and the environment. An example of such a goal may include preventing migration of some carcinogen in the ground water. Following the establishment of such objectives, general response actions (e.g., treatment) for each media of interest are developed. Technology types (e.g., chemical treatment) applicable to each general response action are then identified, followed by the identification and evaluation of process options for each technology type. Table 4-1 of the *RI/FS Guidance* illustrates the alternative development process and provides examples that illustrate each of these terms.

Performing this task helps to identify the data needs for the FS and allows for an early determination of the need for treatability studies. If remedial actions involving treatment have been identified, then the need for treatability studies should be evaluated during scoping because of the impact they can have on RI/FS costs and schedule. Specifically, literature surveys should be conducted during scoping to gather information on candidate technologies. If the technologies have not been sufficiently demonstrated or cannot be adequately evaluated, based on the available information, treatability tests should be performed.

Note: When developing the preliminary list of remedial action alternatives, consideration should be given to the program expectations and to the types of response actions selected for other sites with similar problems or contaminants.

Initiate Identification of Potential ARARs

Identification of potential ARARs during the scoping phase will assist in: (1) identifying remedial goals and alternatives and (2) establishing communication with the support agency. Furthermore, early identification of potential ARARs will allow better planning of field activities. ARAR identification is progressive, with requirements identified and refined as a better understanding is gained of site conditions, site contaminants, and remedial action alternatives. The *CERCLA Compliance With Other Laws* Manual (Part I - August 1988 and Part II - August 1989, OSWER Directive Nos. 9234.1 and 9234.1-02) contains detailed information on identifying and complying with ARARs.

Note: During scoping, the emphasis should be on the identification of contaminant- and location-specific requirements as well as determining the presence of Resource Conservation and Recovery Act (RCRA) regulated hazardous waste. In addition to Federal ARARs, more stringent State ARARs must also be identified.

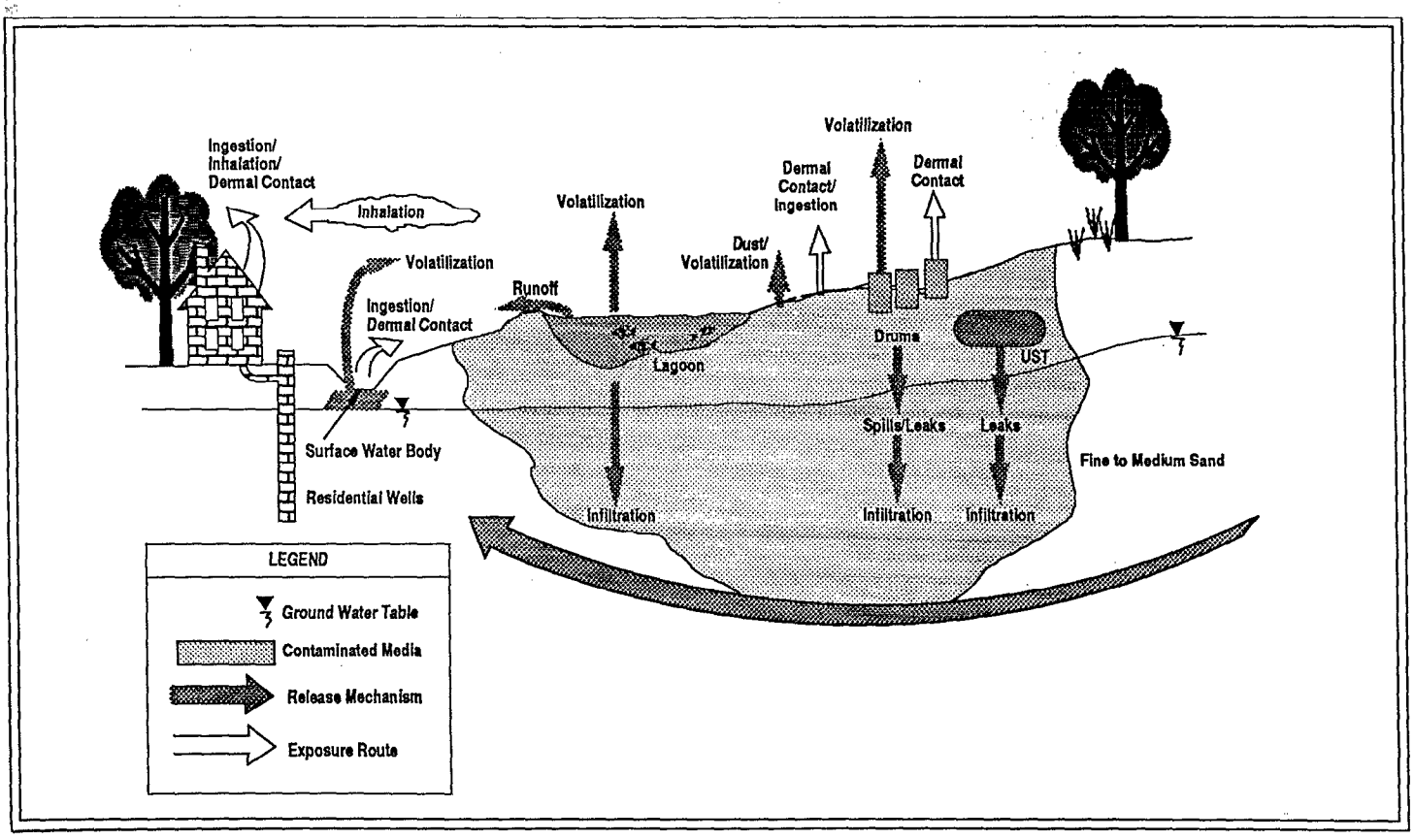

Figure 2. Example of a Conceptual Site Model

Identify Initial Data Needs and Data Quality Objectives

Thorough and focused identification of data needs and data quality objectives (DQOs) will help to avoid data gaps and delays later in the RI, and should minimize reviews/revisions of planning documents. Sufficient data must be obtained to define:

- Site physical characteristics
- Physical and chemical characteristics of sources of contamination
- Volume of contamination and extent of migration
- Potential receptors and associated exposure pathways
- Expected performance requirements of treatment alternatives

This information will be utilized to:

- Determine contaminant fate and transport
- Determine the risks posed by a site
- Develop and evaluate remedial alternatives
- Identify ARARs
- Identify the need for treatability studies
- Support future enforcement or cost recovery activities

Once data needs are identified, the strategies for sampling and analysis are developed, and the DQOs are established. DQOs specify the quality of data required during the different phases of the RI/FS. The type and quality of data needed are based on the intended use of the data, which may include health and safety planning, site characterization, remedial alternatives evaluation, or risk assessment. Additional information on the establishment of DQOs can be found in *Data Quality Objectives for Remedial Response Activities* (March 1989, OSWER Directive No. 9335.0-7B).

Note: Logistics planning should be initiated during scoping once data needs are identified. As an example, procurement of sampling equipment during scoping may be necessary as well as making arrangements with the appropriate laboratory(ies) because of backlog.

Scoping Deliverables

The deliverables developed during the scoping phase include several project plans. These plans are derived directly from activities and data needs identified during scoping.

Work Plan (WP)

The WP documents the decisions and evaluations made during scoping and describes the tasks required to conduct the RI/FS. The WP includes a description of the site management strategy, including the remedial action goals, any short- and long-term actions that may be required to address site problems, and the optimum sequence of site actions and investigative activities. In addition, the WP describes the site's physical setting and includes a background summary detailing the history of previous site activities. To document the decisions made during scoping, the WP should include an evaluation of existing site data, a representation of the conceptual site model, and a description of potential remedial alternatives. A comprehensive description of the work to be performed, including the methodologies to be utilized, as well as the rationale for performing the required activities comprises the main body of the WP. This section also assigns project responsibilities and sets the project's schedule and cost.

The format of the WP should follow the 14 standardized tasks that are described in Appendix B of the *RI/FS Guidance*. These tasks have been developed to provide for consistent reporting and effective monitoring of all Fund-financed

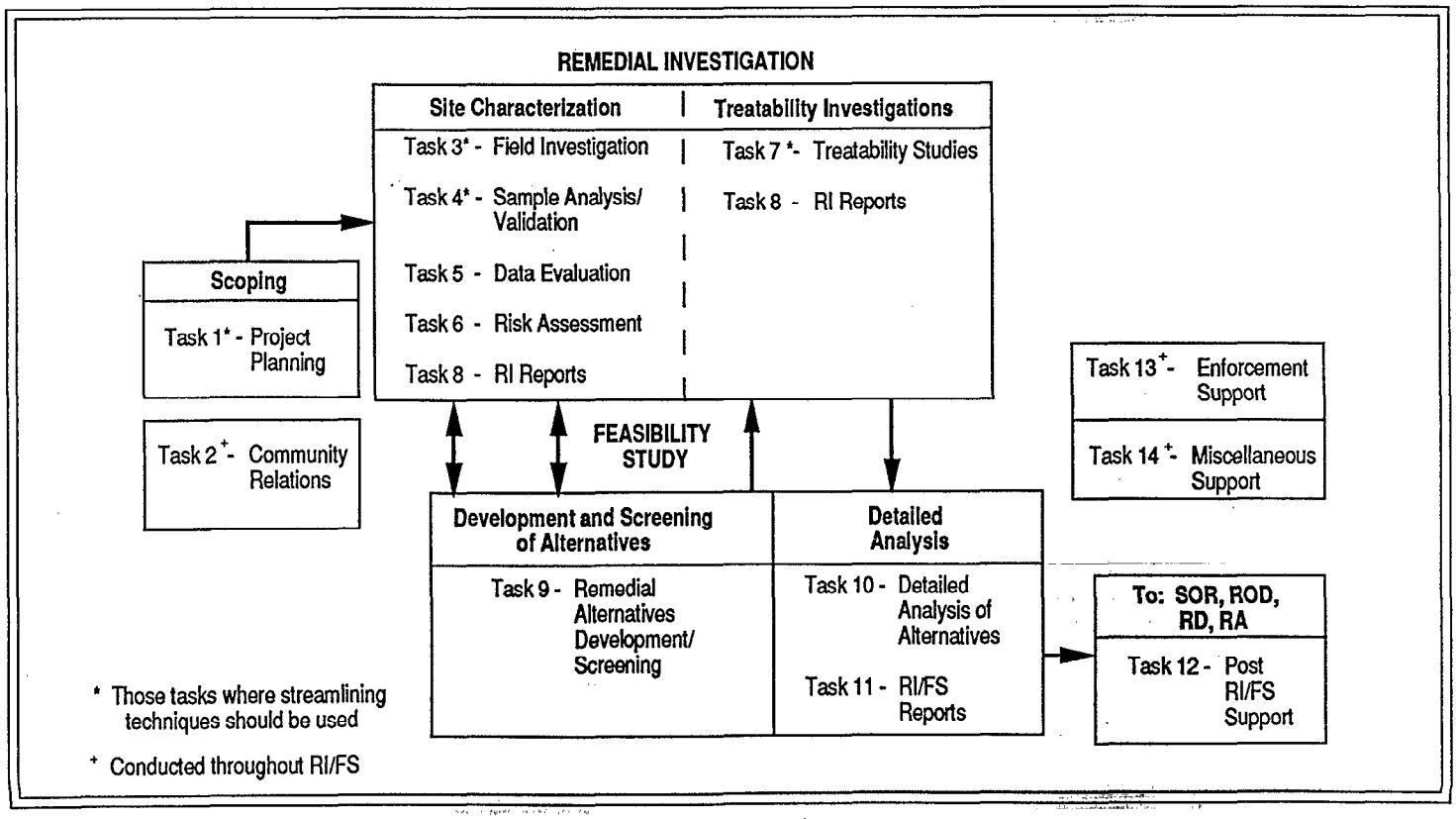

Figure 3. Relationship of RI/FS Tasks to Phased RI/FS Approach

RI/FS projects. These tasks are also recommended for use on State- and PRP-lead projects. Figure 3 depicts the relationships among these standardized tasks and the role that they play during the RI/FS. Those tasks highlighted with an asterisk have been identified as areas where streamlining techniques should be utilized to improve the RI/FS process. Such techniques are described in OSWER Directives 9355.3-06 (2/14/89), 9355.3-05 (4/25/88), and 9355.0-20 (7/22/87).

Note: Work plans may need to be amended when additional data are required to adequately scope later phases of the RI/FS or before conducting treatability studies. If any significant changes to either the budget or scope of the WP are required for Federally funded sites, a Work Plan Revision Request is submitted for approval. When changes to the WP do not affect the budget or schedule, Technical Directive Memoranda have been found to be useful for decreasing administrative time.

Sampling and Analysis Plan (SAP)

The SAP is prepared so that sample collection activities are conducted in accordance with technically acceptable protocols and that the data collected in the field meet the DQOs established during scoping. The plan also serves as a basis for estimating field costs for inclusion in the WP. The SAP consists of a field sampling plan (FSP) and a quality assurance project plan (QAPP). The FSP will define in detail the data-gathering methods that will be used on the project. The FSP should be written so that a field sampling team, unfamiliar with the site, would be able to gather the required information. The QAPP will describe the project objectives and quality assurance/quality control (QA/QC) protocols that will be used to achieve the desired DQOs. A suggested format for the SAP is included in Table 2-4 of the *RI/FS Guidance*. Appropriate guidance on field methods, sampling procedures, and sample custody requirements is found in *A Compendium of Superfund Field Operations Methods* (August 1987, OSWER Directive No. 9355.0-14).

Note: Standard sampling and analytical procedures may be incorporated by reference into the project plans to avoid repeating technical review of a procedure that has already been approved for use in a Region. As an example, there is no need to explain how to take a split-spoon sample; a reference to the appropriate American Society of Testing and Materials (ASTM) document will suffice.

Health and Safety Plan (HSP)

The HSP identifies potentially hazardous operations and exposures and prescribes appropriate protective measures for onsite workers, the surrounding community, and the environment. The HSP should include a detailed site description accompanied by site maps and the results of previous sampling activities. The HSP must conform to the firm's or agency's health and safety program, which must comply with Occupational Safety and Health Administration (OSHA) regulations and protocols. Each HSP should include, at a minimum, the 11 elements described in Appendix B of the *RI/FS Guidance*.

Community Relations Plan (CRP)

The CRP documents the history of community relations and the issues of community concern at a site. It describes the objectives of the community relations activities and how these objectives will be met and includes a discussion of planned community interviews, fact sheets, and public meetings. Discussions with the community should be initiated during scoping as relevant information may be gathered at that time. Report preparation methods, the elements contained in a CRP, and a recommended format are included in *Community Relations in Superfund: A Handbook* (June 1988, OSWER Directive No. 9230.0-3B).

RPM Responsibilities

The RPM is responsible for managing each phase of the RI/FS. These responsibilities include ensuring that adequate technical support is being provided as well as schedule maintenance and financial control of the project.

Technical Support

Techniques the RPM may use during scoping to enhance technical supervision of this phase include:

- Identify people with the appropriate background and experience to serve on a Technical Advisory Committee (TAC). The TAC is a group of personnel from EPA and other Federal agencies, States, and consulting firms selected to serve as technical advisors for a project based on their areas of expertise. Members of this committee should include personnel from ORD's Superfund Technical Assistance Response Team (START) as well as personnel from EPA or other treatability testing laboratories.

  The START is a group of engineering technology experts from ORD whose primary focus is to provide technical support on remedy evaluation, selection, and implementation. Such support will be provided during scoping in the form of identification of potential remedial alternatives and the evaluation of data needs in support of identified technologies. For more information on START, contact Ben Blaney of ORD's Risk Reduction Engineering Laboratory in Cincinnati, FTS-684-7406 or (513) 569-7406.

- Incorporate TAC participation into the project planning phase to identify technical and/or policy issues early in the process.

- Communicate on a regular basis with all involved parties (key decisionmakers from the lead and support agencies; consultants; Federal Trustees, as appropriate; and other TAC members) to reach an early consensus on the project approach. Inform key decisionmakers of all circumstances that relate to making the final decisions regarding the site management strategy.

- Communicate any special concerns associated with the site to all appropriate personnel, including the members of the TAC.

- Communicate with contractor personnel at each juncture of the scoping process. Contractors are not responsible for making major decisions.